

**NSF Committee of Visitors Report
Instrumentation and Facilities Program
Division of Earth Sciences
Directorate for Geosciences
August 22-24, 2007**

2009 UPDATED RESPONSE TO SPECIFIC COMMENTS IN THE COV REPORT

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October 20, 2009

On August 22-24, 2007, a Committee of Visitors (COV) met at NSF to review the Instrumentation and Facilities (IF) Program in the Division of Earth Sciences (EAR). The review covered IF proposal and award actions for the Fiscal Years of 2004, 2005, and 2006 as well as more recent activities that reflect on the activities and development of the IF Program. While overall very positive and complimentary of NSF's management of the IF program, the COV report contains some specific recommendations on IF Program areas that the COV believes could be improved. The following sections provide the 2009 update in *italics text* to the specific recommendations contained in the COV report:

1. The Instrumentation and Facilities POs should partner with PIs to communicate more effectively to the lay public – not just the scientific community – the excitement, quality and societal impact of the outstanding science coming out of IF-supported facilities and research.

This is a good suggestion and we agree. The primary process for doing this within GEO is to have PIs and POs alert the Office of Legislative and Public Affairs when a press release or a Nature or Science magazine article is forthcoming. This will result in a joint press release from NSF and the PI institution. IF will renew its efforts to alert its PIs to the importance of this public information mechanism. Another highly effective communication mechanism is through the IF-supported facilities such as IRIS and UNAVCO. These facilities sponsor well-attended museum displays, public lectures, and teacher workshops that convey the excitement and societal impacts of the Earth sciences to large numbers of the lay public each year.

2009 Update: IF Program Officers continue to stress the importance of communication between our PIs and the lay public at the NSF booth and in all oral presentations (at AGU, GSA, on campus site visits), and encourage members of the IF Panel also to communicate this need to our scientific community. The IRIS, UNAVCO, and COMPRES websites all have E&O tabs that direct educators and the lay public to the exciting science enabled by these facilities; the IRIS website was significantly upgraded in 2009, making the E&O information even more accessible. The most recent revision of the EAR/IF solicitation (09-517) permits PIs to request up to \$10,000 in support of outreach activities related to the funding request to engage audiences that otherwise will not have access to the instrumentation and/or data generated.

2. EAR should partner with its PIs and advisory bodies to communicate more widely throughout the scientific community the effectiveness of its programs in terms of Broader Impacts.

This is a good suggestion and we agree. This is a topic that will be taken to the Advisory Committee for Geosciences for discussion and suggestions.

2009 Update: Members of the 2007 IF/COV published the results of their review of the IF Program in the 12 February 2008 issue of Eos (v. 89, no. 7, p. 61). One section in their article dealt with the issue of “Broader Impacts” and the role of infrastructure investments as a valid and important type of broader impact. NSF’s website was also highlighted in the IF/COV Eos article as a valuable resource for PIs (<http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>). This article continues to be cited regularly by the community as being a very useful resource about the program and these important issues.

3. EAR should more explicitly include evaluation of management in its panel and advisory structures, and partner with the research community to identify and disseminate best management practices for large scientific projects.

In response to the increased NSF emphasis on good management, GEO has instituted exactly this recommendation by means of a requirement of a management review midway in the life of an award for a large scientific project. The review is done in partnership with the NSF Large Facilities Office. Submission of a renewal proposal is contingent on a successful review, or a successful improvement of management utilizing NSF expertise and best practices within the scientific community. EAR has conducted a number of these management reviews in the last two years. Best-practice dissemination is routinely done through advisory review panels and a regular facility-director management meeting series is under discussion.

2009 Update: A review of IRIS facility management was completed in April 2009. A review of all IRIS business systems was also conducted by the NSF Large Facilities Office in the fall of 2009, and will conclude with the release of a final report in late 2009. Additionally, the GEO Directorate established in 2009 a “Project Management Exchange Group” of Program Directors with extensive experience in large project management to provide a mechanism internal to GEO to assist in the optimization of large facility projects. IF Program Officer Kelz continues to represent EAR on this committee.

4. The COV reluctantly concludes that – among other possible solutions – a uniform policy of requiring a specific amount of cost sharing (e.g., 30%), whether from the PI’s institution or from other funding sources, would result in a larger and more balanced community receiving funds.

Cost sharing policy is now determined at the NSF-wide level by the National Science Board and, as the COV is aware, the policy is to not require cost share, with the exception of the NSF-wide MRI program which reinstituted cost sharing in FY2008 as required by the America COMPETES Act. Your recommendation to reinstitute cost sharing in the IF Program will be forwarded to NSF upper management.

2009 Update: The NSB has been studying the impact of loss of cost sharing on a number of Programs and has recently recommended that cost sharing be reinstated for Programs with significant industrial participation (e.g., SBIR, ERC, EPSCoR). A preliminary “Report to Congress on Cost Sharing Policies at the National Science Foundation” was published in February 2008 (NSB-08-17) that discusses these issues and the NSB recommendations. The NSB continued to study the impact of the elimination of cost sharing in other Programs and reported its findings in a final report to Congress in 2009 (NSB-09-20: “Investing in the Future – NSF Cost Sharing Policies for a Robust Federal Research Enterprise”). In their report they stated that “NSF should define and communicate, both internally and externally, a set of overarching principles to guide the limited application of mandatory cost sharing in NSF programs”. NSF upper management is currently developing these principles.

5. ...with the large fraction of the IF budget going to facilities the program officers should consider panel members with management experience to help evaluate the management review of the large facilities.

This is a good suggestion and we agree. This is already done when a special emphasis panel is formed to evaluate management specifically and for the renewal of a large facility, but the standing IF panel would also benefit from members with increased management expertise.

2009 Update: The IF Program continues to strive to include scientists on the IF panel who manage large facilities and/or who are in upper-level management positions at their institutions (Deans, Vice Presidents for Research). Over the past several years, the IF Program has been very successful in recruiting individuals with senior management experience to the panel. This ensures that the IF Program receives well-informed management advice for large (and small) facilities.

6. As noted in the 2004 COV report, the Broader Impacts (BI) criterion historically has not been as fully considered as the Intellectual Merit (IM) criterion in proposal evaluation. We noticed a trend toward improved consideration of the BI criterion for the proposals from the more recent fiscal years (e.g., FY2006 as compared to FY2005 or FY2004).

Program officers will work to continue to improve BI analyses in panel summaries and review analyses.

2009 Update: Program Officers continue to discuss reviewer comments and include in their recommendations (via the Review Analysis document) aspects of the proposal that address the Broader Impacts merit review criterion.

7. A positive suggestion may be made regarding the need to engage more panel review members from the community. Although we recognize many implicit pitfalls in this idea, we suggest IF consider experimenting with greater use of tele-conferencing technology and/or other means of electronic interaction to maximize panel member interaction prior to panel meetings in order to shorten face-to-face panel meetings but keep them productive.

While tele-conference panel meetings have been used under special circumstances, such as after 9/11, they are not commonly used at NSF because of the requirements under the Federal

Advisory Committee Act (FACA) requiring the physical presence of a federal officer as well as to monitor conflict regulations. Expanding panel review members is a desirable goal but the extra cost must be balanced with the use of the funds for grant support. EAR management and program officers have been increasing the size of panels in the past few years to broaden panel diversity and areas of expertise.

2009 Update: The IF Program regularly uses the NSF “Interactive Panel System” which affords panelists the opportunity to comment on proposals and write individual reviews prior to scheduled panel meeting via the NSF Fastlane website. The Program has found that this business systems e-module maximizes panel member interactions prior to the meetings and makes our time at the meetings much more productive. Panelists often comment on how valuable this system is for their work. The IF Program is still considering experimenting with the MS SharePoint collaboratory software product as a means of sharing additional information prior to panel meetings (spreadsheets, presentations, etc.). However, at this stage the Program has not yet engaged this new method of sharing information.

8. NSF should develop a mechanism by which PI’s final reports could be exported into a database, and could be amended up to several years after the end of the grant. This would greatly facilitate Program Officers’ abilities to collect, document and showcase the long-term impacts of IF awards.

While such a capability does not exist presently in NSF’s on-line reporting software, the ability to add later publications is currently under discussion.

2009 Update: This enhancement to NSF’s Fastlane reporting module is still under discussion.

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